

Application No. 09/818,193  
Amendment Dated November 23, 2004  
Reply to Office Action of November 16, 2004

**Amendments to the Claims**

This listing of claims will replace all prior version and listings of claims in the application:

**Listing of Claims:**

1. (Currently amended): A method for manufacturing a semiconductor device comprising the steps of:
  - forming a layer of silicon dioxide on a silicon carbide substrate to create a silicon ~~dioxide-carbide~~/silicon carbide interface with an interface trap density; and
  - incorporating nitrogen at the silicon dioxide/silicon carbide interface for reduction in the interface trap density,
  - wherein the silicon carbide substrate comprises 4H-SiC and is doped with an n-type dopant.
- 2-4. (Canceled).
5. (Previously presented): The method of Claim 1, wherein the step of forming the layer of silicon dioxide comprises the steps of:
  - cleaning the silicon carbide substrate; and
  - oxidizing the silicon carbide substrate.
6. (Previously presented): The method of Claim 5, wherein the step of cleaning the silicon carbide substrate is performed with a solution having 10% HF in weight.
7. (Previously presented): The method of Claim 5, wherein the step of oxidizing the silicon carbide substrate is performed thermally.

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8. (Original): The method of Claim 7, wherein the silicon carbide substrate is oxidized at between about 900 °C and about 1150 °C.
9. (Original): The method of Claim 1, wherein the layer of silicon dioxide is greater than about 10 Å thick.
10. (Previously presented): The method of Claim 1, wherein the nitrogen is incorporated by annealing the semiconductor device in nitric oxide or nitrous oxide.
11. (Original): The method of Claim 10, wherein the semiconductor device is annealed at between about 950 °C and about 1200 °C for between about 1 and about 4 hours.
12. (Original): The method of Claim 11, wherein the semiconductor device is annealed at about 1175 °C.
13. (Previously presented): The method of Claim 1, wherein the nitrogen is incorporated by annealing the semiconductor device is ammonia.
14. (Original): The method of Claim 13, wherein the semiconductor device is annealed at about between 950 °C and about 1200 °C for about 4 hours.
15. (Original): The method of Claim 14, wherein the semiconductor device is annealed at about between 1175 °C.
16. (Previously presented): The method of Claim 1, wherein an areal density of nitrogen at the silicon dioxide/silicon carbide interface is between about  $0.5 \times 10^{14} \text{ cm}^{-2}$  and about  $1 \times 10^{16} \text{ cm}^{-2}$ .

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17. (Original): The method of Claim 16, wherein the areal density of nitrogen at the silicon dioxide/silicon carbide interface is between about  $1 \times 10^{14} \text{ cm}^{-2}$  and about  $2 \times 10^{15} \text{ cm}^{-2}$ .
18. (Original): The method of Claim 1, wherein the maximum concentration of nitrogen at the silicon dioxide/silicon carbide interface is about 0.5%.
- 19-26. (Canceled).